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May 15, 1990

MAY 15 1990

Mr. Robert N. Nelson, Jr.
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Mr. Phillip Warner
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Golden, CO 80402-0928

Re: Comments on the April 12, 1990 Final Phase II RFI/RIFS Workplan
(Alluvial) for OU2

Dear Messrs. Nelson and Warner,

The Colorado Department of Health, Division of Hazardous Materials and Waste Management (the Division) has reviewed the April 12, 1990 final Phase II RI/RIFS Workplan (Alluvial) for Operable Unit 2 (OU 2).

The Division gives conditional approval of the Final Phase II RFI/RIFS Alluvial Workplan for Operable Unit 2. Conditional approval is required, prior to initiation of work, in accordance with the proposed Interagency Agreement (IAG) between DOE, the State of Colorado and EPA. Approval remains conditional until DOE incorporates the enclosed comments in the Draft Phase II RFI/RI Report for OU 2 to the satisfaction of CDH.

The authors of the Final Phase II RFI/RIFS Alluvial Workplan for OU 2 should be applauded for their efforts in producing a well written, technically sound document. The Division anticipates this summer 1990, six forthcoming site wide activity documents will be of the same comprehensive technical quality. The relevant sections of the The Health and Safety Plan, Plan for Prevention of Contaminant Dispersion, QA Program, Discharge Limits for Radionuclides (Workplan), Sampling and Analysis Plan, and Treatability Study should be submitted to the agencies as soon as possible, and included in the Draft RI Report for OU 2.

ADMIN RECORD

A-BU02-000043

EPA is submitting comments on the final RFI/RIFS workplan for OU 2 under separate cover. If you or any of the members of your staff should have any questions or concerns that you would like to discuss, feel free to contact Noreen Matsuura at (303) 331-4920.

Sincerely,



Gary W. Baughman,
Unit Leader
Hazardous Waste Facilities
Hazardous Materials and Waste Management Division

Encl

cc Joan Sowinski, CDH
Fred Dowsett, CDH
John Haggard, RFP
Teresa Hampton, AGO
Robert Duprey, EPA
Martin Hestmark, EPA
Patty Corbetta, EPA
Rich Schassburger, DOE
Tom Greengard, EG&G

GWB/NM/nm

CDH Comments on the Rocky Flats Plant
FINAL PHASE II RFI/RIFS WORKPLAN
(Alluvial)
Operable Unit No 2
April 12, 1990

General Comments

This and other similar documents submitted for review by DOE do an excellent job of covering geology, demographics, physical location, ecology, and both underground and surface water but they all lack good coverage of meteorological and fugitive emissions information. In this document wind dispersion is referred to once in section 1.4.2.1 Mound Site (SWMU Ref No 113) but with little explanation. Particulates are a major method of transport for contaminants through reentrainment. Any leakage or spills of solids such as those from deteriorating pondcrete and construction activities of other soil disturbances will also add to fugitive particulates in the air which are a pollutant by themselves and may also carry other contaminants.

A second area of fugitive emissions which did not receive adequate consideration are fugitive VOC emissions. These may occur from drum leakage, spills, seeps, etc. While these emissions may be of minor levels they add to the total plant emissions and are never controlled. Both the VOC and particulate emissions can have impacts on both human health and the environment.

SECTION 1.0

Figure 1-5

The location of the 903 area 'Lip' is inconsistent with the historical definition of the Lip, particularly with regard to what was removed and the material shipped to NTS as low level radiological waste. The historical 'Lip' is SE of the 903 pad, over the brow of the hill (a depositional area of windblown contamination). The narrative does mention the removal in relation to the metals destruction area that occurred there also. Considerable covering and recontouring of the 903 area has occurred which will complicate cleanup/removal.

Section 1.3.1.2

Previous investigations, item 8 makes minor reference to meteorological studies but does not detail. This should have included a study of fugitive particulates.

Section 1.4.1.1 Page 1-19

There is no reference to HASL-235 information which indicated that the loss of control of materials was greater than 86 grams. It may be that other documents referenced do include discussion of HASL-235 et seq documentation. Also recognize that statements made about inventory lost from control are time related, in that the plant boundary has changed over the years.

Section 1.4.1.2 Page 1-23

The off-site disposal location of the first two soil cleanups is unknown. Is the off-site disposal location of the 214 tri-wall pallets of contaminated soil removed during the 1984 third soil clean up unknown as well?

Section 1 4 2 2 Page 1-26

Ground penetrating radar or some other kind of noninvasive geophysical investigation should be done to define the location of the 125 buried drums in Trench T-1, SWMU Ref No 108

Section 1 4 3 1 Page 1-27

Again some kind of noninvasive geophysical investigation should be done to define the location of the 300 buried drums

SECTION 2 0

Phase I Site Evaluation item nine, air monitoring for total long lived, alpha, plutonium, and volatile organics during field activities is listed, however the collection and analytical methods should also be referenced for evaluation

Table 2-3

Regarding radiological parameters, the results for sediments should be in pCi/gram, not pCi/liter

Table 2-4

Are the radiological parameter results to be in pCi/L or pCi/gram?

Section 2 3 1 Page 2-14

It is not an acceptable practice to use background concentrations derived from maximum detectable values i.e. sample size less than seven and in some cases as few as two samples, to identify contaminated sites. It is acceptable to use maximum background values for borehole and monitoring well placement. All background concentrations used to identify contaminated sites must be either 95% upper tolerance interval limits, or 95% or higher upper confidence interval limits.

Section 2 3 2 1 Page 2-28

No reference to HASL-235 et seq documentation. There is no mention of the work done by Michels (RI) who did work on the depth of soil contamination penetration in the 903 area. Michels also published information regarding background Pu in the midwest for comparison with the RFP environs.

Section 2 3 2 1 Page 2-31

The reduction of Pu/Am contamination by wet screening is suspect. While Pu attaches to clay particles and particle size separation (a soils classification methodology used by USGS and Dr. Johnson) is feasible, there are complications. The wet process takes considerable water and total destruction of the particle conglomerates. The treatment and disposal of such waste water would present additional complications. Dry separation is also problematic due to the dust generated even with closed systems. Cleveland (RI now USGS) tried the process using clean soil unsuccessfully at the Sweeny Mining and Milling facility on Sugarloaf above Boulder.

Section 2 3 2 2 Page 2-37

The 903 Drum Storage area has been identified as the wind dispersal source of ground surface Plutonium and Americium contamination at the Mound, Oil Burn pit and Trench Sites. There should be a meteorological analysis of the direction of prevailing winds over the site with respect to topography. Were there topographical features where winds could have deposited significant amounts of radionuclide contaminated soil before the pad was placed on 903?

How many additional soil samples will be collected from borings at both possible Pallet Burn Sites? Will the soil sampling tests and data needed to evaluate depth and extent of plutonium in soils at both Pallet Burn sites be completed and presented in the Draft Phase RI Plan

Section 2 3 2 Soils

What radionuclides, other than americium and plutonium will be tested for in evaluation of elevated Pu and Am concentrations in surface soils?

Section 2 3 2 1 903 Pad & Lip Sites Ph I RI Soil Investigation Results

How many and where, will the additional boreholes, through and immediately adjacent to the pad during Ph II RI validation of VOC soil contamination be placed?

Page 2-35 Specify what additional surficial soil and soil profiling is going to characterize the radionuclide distribution on the 903 Pad and Lip Sites

Section 2 3 2 3 Page 2-38

Page 2-39 What was the depth of the uppermost soil sample taken at Borehole BH 52-87, where the most contaminated soil was found?

Section 2 3 3 1 Page 2-42

Will the CCl₄ plume at 903 Pad be sufficiently delineated by information gained from the additional boreholes placed immediately adjacent to the pad, referred to in Section 2 3 2 1 for VOC soil contamination Ph II RI Validation?

Page 2-48 How many and where will the additional monitoring wells to delineate the extent of PCE contamination, (southeast downgradient of Pad 903 Pad and Trench T-2), be placed?

Page 2-49 How will the additional data required to assess the significance of chloroform in wells 28-87 and 30-87 be gathered?

Page 2-50 What further sampling and analysis will be done to resolve methylene chloride and acetone contamination at well 36-87BR?

Section 2 3 6 Page 2-81

The ambient air data is not provided by individual station, which is important, as the individual station data of significance is washed out in averaging. The resultant summary talks in generalities only. There is a need to require historical air sampling data as current concentrations are lower, due to surficial burial of the contamination ***

Page 2-84

The last sentence refers to airborne plutonium contamination as being in compliance with Clean Air Act regulations (40 CFR 61) Subpart H of 40 CFR 61 is the National Emission Standard for Radionuclide Emissions from Department of Energy (DOE) facilities. This covers radionuclide emissions as a whole and not specifically for plutonium as implied in the document. There are not specific standards for plutonium in the CFR or State Regulations.

Section 2 3 8 Page 2-85

The summary of contamination only addresses ground water. There are no statements regarding soil contamination.

SECTION 2 4

Applicable or Relevant and Appropriate Requirements should also include a reference to the Colorado Clean Air Act and the Air Quality Control Commission's (AQCC) Regulations. The AQCC regulations are especially important for considerations of complete or partial removal and treatment of wastes and contaminated soils, which are again referred to in Section 2 5. The regulations also apply for in-situ treatment.

SECTION 2 4 Page 2-87 to 2-95 Table 2-12

Table 2-12 and Section 2 4 on ARARs addresses water only. No mention of ARARs for soil and sediment contamination for radiological and hazardous substances.

Table 2-12 starting on Page 2-89 lists ARARs which I understand were based on ground water standard or surface water drinking standards or other appropriate standards but did not specifically list as potential standards the site specific surface water standards based on aquatic life uses -- I assume because there would be no aquatic life use of ground water. However, I believe both sets of standards should be listed because

a) pages 2-87 of the document states there is significant interaction of alluvial ground water and surface water in the drainages of the Rocky Flats Plant, and

b) any discharge to the surface waters, e.g., during remediation, must meet the surface water standards, and these surface water standards could be more stringent than the presently identified ARARs (i.e., aquatic life standards for metals can be significantly more restrictive than drinking water standards).

Many of the standards for surface water metals are listed as Table Value Standards (TVS) referring to formulas in the Basic Standards which are based on hardness as CaCO_3 .

Page 2-89 The effective site specific surface water standard for chloroform is 10 micrograms per liter (based on detectable levels).

The detection level specified by CDH for tetrachloroethene and 1,1,2,2-Tetrachloroethane is 10 microgram per liter, not 5.

Page 2-93 Typo. It should state Analytical results are total nitrate plus nitrite nitrogen.

Page 2-94 The units should be pCi/liter for rads, rather than mg/liter, and the gross alpha ARAR is CDH surface water standard (not ground water).

Table 2-13 Page 2-96

Response actions and remedial technologies should include controls of air emissions for study and review.

Page 3-7 Table 3-2

Are the units in mg/liter or pCi/L for radiological parameters? The table does not address soil or sediments

SECTION 4.0

The author of this section has provided a well written concise outline of the work ahead

Section 4.1.7 page 4-14 The four methods proposed for treatability study sound interesting and promising

SECTION 5.0

The Division realizes that the site wide Health and Safety Analysis, Quality Assurance, Prevention of Contaminant Dispersion and Sampling and Analysis documents have not been submitted for review at this time. Inclusion of the relevant parts of these documents is appropriate.

It appears that some of the earlier comments on additional sampling were premature.

Page 5-30

Don Michels in the 1970's identified that the plutonium contamination had penetrated to at least 8 cm. There is not enough detail presented to concur in the sampling approach. The proposal is not definitive. Pu contamination identified at BH30-87 is at depths greater than 20 feet. Inventory sampling procedures will yield much greater than 2 dpm/gram all the way to Indiana Street. Depth profile (inventory) soil sampling data needs to be presented in $\mu\text{Ci}/\text{m}^2$ or mCi/km^2 for comparisons with historical information and materials balance (there has been no mass wasting or erosion and removal from these large areas).

Figure 5-5 needs a profile sample due east at Indiana Street due to the windstrewn field in that area.

Section 5.2.3 Page 5-43 This section needs uranium analysis data included. Regarding the East Trenches data, all BH 53-87 2-3 5 feet deep analyses 0.98 pCi/gram, which is in excess of the State soil standard.

Appendix D The appendix does not include soil or sediment ARARs.